

2019

# BEFASTA Education to Change Attitudes to Call 911 When Stroke Symptoms Occur

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BEFASTA Education to Change Attitudes to Call 911 When Stroke Symptoms Occur

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Submitted in partial fulfillment of the  
requirement for the degree of  
Doctorate of Nursing Practice

AUGSBURG UNIVERSITY  
MINNEAPOLIS, MINNESOTA

2019



Presentations

BEFASTA

February 21, 2018

Augsburg University Poster Presentation

Minneapolis, MN

BEFASTA

April 10, 2019

Augsburg University Final Scholarly Presentation

Minneapolis, MN

### Dedication

My project is dedicated to all the people I have had the honor to care for, who have been paralyzed from a stroke.

### Acknowledgment

My children, Athena, Ian, and Ingrid, they are my inspiration for living. Thank you, children, for encouraging me to continue to improve myself. To my parents Eric and Jo Anne Swanson who genetically instilled in me an insatiable desire to learn and provided the finances for my education. To Cyndi, Philip, and Sven thank you for your endless prayers and spiritual support. Thank you to Marilyn Theismann for helping me formulate the correct words to describe my DNP project accurately. Most importantly THANKS BE TO GOD for continuously guiding me!

### Abstract

In the 1990s, the medication Alteplase was starting to be used to treat ischemic stroke. It is necessary to administer this medication within 4.5 hours from the time the person is last known to be without symptoms of stroke. To raise public awareness of stroke symptoms and the need to present to a hospital quickly to receive this medical treatment, the acronym FAST representing facial drooping, arm weakness, speech difficulties, and time, was developed in 1998. FAST has successfully been used in many public awareness efforts. Research studies have demonstrated the effectiveness of FAST in helping people remember the symptoms of stroke. Although FAST continues to be effective, it does not incorporate the symptoms of stroke in the posterior circulation of the brain. Recent efforts to update the acronym to include balance and eyes became BEFAST. Protocols for stroke codes have evolved into the emergency medical system to facilitate patients getting acute medical care as quickly as possible. Still, most people present beyond the window of time for the opportunity to receive Alteplase. Because of Alteplase effectiveness, an A is added to the acronym, BEFASTA. This project will provide an approach to educating people about the effectiveness of Alteplase to convince them to call 911 as quickly as possible when experiencing stroke symptoms. The questionnaire used to survey the attendees' opinions before and after the educational session demonstrated that education does influence a person's opinion. The results were conclusive that the audience all agreed if they were experiencing stroke symptoms they would call 911.

*Keywords: Ischemic Stroke, Alteplase*

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## BEFASTA Education to Change Attitudes to Call 911 When Stroke Symptoms Occur

### Chapter One: Introduction

Worldwide, stroke continues to be the number one cause of death and disability (Sarikaya, 2013). In the 1990s, the medication Alteplase was starting to be used to treat ischemic stroke. It is necessary to give this medication within 4.5 hours from the time the person is last known to be without symptoms of stroke. To raise public awareness of stroke symptoms and the need to present to a hospital quickly to receive this medical treatment, the acronym FAST representing facial drooping, arm weakness, speech difficulties and time, was developed in 1998. (Harbison et al. 2003). FAST has successfully been used in many public awareness efforts. There are research studies to demonstrate the effectiveness of FAST in helping people remember the symptoms of stroke. FAST continues to be effective, but it does not incorporate the symptoms of stroke in the posterior circulation of the brain. Recently, there have been efforts to update the acronym to BEFAST, the B for balance and the E for eyes. Protocols for stroke codes have evolved into the emergency medical system to facilitate patients getting acute medical care as quickly as possible. Still, most people present beyond the window of time to receive the medication. This project will provide an approach to educating people about the effectiveness of Alteplase to convince them to call 911 as quickly as possible when experiencing stroke symptoms. This project will create a new acronym, adding A for Alteplase and will provide to communicate the symptoms stroke and the medication used for emergency treatment. The new acronym is BEFASTA with the A standing for Alteplase.

### **Problem Statement**

For 20 years, there have been efforts to inform the public about the symptoms of stroke and the importance to go to a hospital as fast as possible if they occur. Despite these efforts only about a third of people experiencing an acute stroke arrive within the window of time to receive treatment with the medication Alteplase. The public needs to be educated that there is medical treatment for stroke that significantly decreases potential brain damage and severe disability.

### **Purpose of the Scholarly Project**

This project will provide an informational tool about risk factors for stroke, how to identify symptoms of stroke and why it is important to call 911 to get to a hospital to be evaluated for possible emergent treatment with Alteplase. The title of this project is based on the stroke symptoms that affect balance, eyes, facial drooping, arm weakness, speech difficulties and time, with the added component of the drug Alteplase (BEFASTA). The BEFASTA educational tool will provide people with information about the effectiveness of Alteplase for treating individuals who are having an embolic stroke.

### **Objectives**

The BEFASTA stroke education resource will be a useful tool for health care providers to educate their patients about their personal risk factors for stroke and current treatment for ischemic stroke.

### **Patient Population and Health Care Setting**

The risk of stroke has been shown to double after age 55 regardless of ethnicity. The BEFASTA stroke education resource will be for people of all ages, but the target

audience will be people 55 years and older. In addition to health providers having this information for patients, informational sessions will be conducted in public settings, such as senior living communities.

This project will demonstrate that providing education to people about stroke symptoms and current emergent treatment available will influence their opinion to seek treatment if they think they are experiencing symptoms of stroke.

## Chapter Two: Literature Review

Included in this chapter is a comprehensive review of current information about the success of Alteplase to treat embolic cerebrovascular events. There is a narrow window of time for this medication to be properly administered. The success of this treatment is related to a person presenting to a hospital as quickly as possible to the onset of symptoms of stroke. Prior studies have proven success with community education of stroke symptoms to increase people presenting to the hospital when symptoms occur.

### **Medication for Stroke Prevention**

In 1995, the National Institute of Neurological and Stroke (NINDS) published the study that forever changed medical treatment of ischemic strokes. For the first time, there was proof that giving a medication emergently would improve circulation, lessen the area of ischemia of the brain, and decrease or prevent severe disability. This medication is a tissue-type plasminogen activator (tPA) called Alteplase (Campbell, Meretoja, Donnan, & Davis, 2015). Before 1995, when a patient came to an emergency department with paralysis, there was no urgency for brain imaging or medical treatment because no acute effective intervention was available to change the outcome of disability. Six more randomized trials have been completed comparing tPA to a placebo, and all have demonstrated the efficacy of emergent treatment with tPA for ischemic strokes (Campbell et al., 2015). These six trials were pivotal to discover that the medication must be given intravenously within 4.5 hours from onset of symptoms to benefit a patient and to avoid a possible adverse event of intracranial hemorrhage. Campbell et al. (2015) summarized how efficient hospitals have been triaging patients quickly once they arrive and successfully treating patients emergently with tPA in fewer than 60 minutes from

arrival to the infusion of the medication. The term for this has been commonly referred to as, door to needle. (Campbell et al., 2015, p. 2344). Campbell et al. suggested future initiatives need to be focused on decreasing the time from onset of symptoms to needle. The way to decrease this time is with public education on how to recognize stroke symptoms and utilize emergency services. Campbell et al. reinforced the continued need for advertising campaigns.

Initially, Alteplase was not recommended for adults older than 85 years. Because of success with alteplase, research studies were conducted to determine if this recommendation should be changed. Sarikaya (2013) authored a comprehensive review that addressed if giving tPA to patients greater than 80 years increased the incidence of the adverse effect of intracranial hemorrhage. Sarikaya listed 20 studies where the patients older than 80 years were separated out. The data showed no increase in hemorrhage rate for this population. These were important findings because previously, physicians had hesitated to administer alteplase to this population fearing the elderly brain may be at more risk to bleed.

### **Stroke Treatment Response**

The American Heart Association/American Stroke Association (2016) has a Stroke Registry associated with Get with the Guidelines (GWTG). This registry has 1563 hospitals participating and contributing data (Ekundayo et al. 2013). Ekundayo et al. (2013) analyzed the data from the contributing hospitals to discover trends with stroke patients. The data they summarized included information related to who used the emergency medical system (EMS) and if it made a difference if the patient arrived in time to receive emergent treatment of tPA for ischemic stroke. Activation of EMS clearly

demonstrated the most effective way for a stroke patient to be identified and transported quickly to a hospital with faster times to evaluation and treatment. Ekundayo et al. found that more than one-third of stroke patients did not call for EMS. The populations that were less likely to use EMS were minorities and people living in rural communities. History of a previous stroke or transient ischemic attack (TIA) did not increase the utilization of EMS. People with private insurance or no insurance were less likely to utilize EMS than people covered by Medicare or Medicaid. Reducing delays for activation of EMS to bring a person with stroke symptoms to a hospital to be evaluated and treated has been associated with increased success with a person receiving tPA, resulting in minimal or no disability at 3 months' post-stroke. Emberson et al. (2014) provided a meta-analysis with data from 6756 patients from nine randomized studies. Results from these studies demonstrated more evidence that the earlier a person receives tPA within 3 hours of onset of symptoms, the better the outcome of lesser disability at 3-6 months post-stroke. These benefits were noted despite a patient's age. Ekundayo et al. (2013) called for continued media campaigns to increase public awareness of warning signs of stroke with an emphasis to reach out to minorities and rural communities.

### **Racial Disparities with Stroke Response**

Health care providers have expressed concerns that there may be racial disparities related to treatment with tPA. Hsia et al. (2011) conducted a chart review study in a predominately urban Black population. Blacks were treated less often than Whites with tPA for stroke. The two predominant reasons were contraindications to treatment and delay in presentation. Interested in discovering if there was a difference in mortality rates with stroke when comparing three different race/ethnicities, Blacks, Hispanics, and

Whites, Hanchate, Schwamm, Huang, and Hylek (2013) summarized data from eight states, including 147,780 hospitalizations. Their findings showed that White patients were older and had a higher rate of atrial fibrillation than Black and Hispanic patients. What was a surprising finding is that race did not make a difference for mortality. White patients had more incidence of cardioembolic strokes. The Hispanic and Black populations were younger, and for them, the single biographical data that influenced mortality was income status. People from low-income communities had a higher mortality rate compared to people from high-income areas (Hanchate et al., 2013).

### **Awareness of Stroke Symptoms**

Lack of awareness of stroke symptoms is a continuing concern. O'Connell and Hartigan (2011) conducted a small qualitative study to discover if patients who had strokes were aware of their symptoms and the time it took for them to seek medical treatment. They discovered through detailed interviews that their participants lacked knowledge that they needed emergent medical treatment and that thrombolysis treatment was available. O'Connell and Hartigan emphasized a lack of knowledge among older adults. Their conclusion supports the continued need for educating the public about signs of stroke.

The English Department of Health in the United Kingdom launched an educational campaign to raise awareness of stroke symptoms using the acronym FAST. After the campaign had been completed, a follow-up questionnaire survey was distributed in public areas to assess if the general public was aware of signs of stroke. The survey confirmed that the advertising efforts were effective with influencing people to be aware of signs of stroke and to alert EMS. Robinson, Reid, Hauton, Wilson, and Naylor (2013)



noted that minority and ethnic populations were less influenced. Another discovery was that symptoms of stroke such as leg weakness and visual loss still were not recognized by those who completed the survey (Robinson et al., 2013).

Advances in technology, specifically smartphones, have opened up a new way for people to obtain information. The National Institute for Stroke and Applied Neuroscience at AUT University developed a smartphone application, called a Stroke Riskometer TM app. for an individual to enter health information and find out his or her potential for stroke in 5 or 10 years. It is translated into 12 languages. The app provides information on 19 stroke risk factors. Phone apps are the newest way to reach people and provide information identification and prevention of stroke (Feigin et al., 2015). The American Stroke Association has launched a phone application named, Spot a Stroke FAST. This application asks questions to be answered by someone who thinks he or she may be experiencing a stroke. If the person says yes to symptoms, there is a place to touch that will call 911 from their phone (AHA/ASA, 2016).

All of the studies provided support the emergent treatment of embolic stroke with Alteplase. Educating the public about stroke symptoms, the availability of treatment and its success is key to influencing the action of an individual to call for help if these symptoms present.

### Chapter Three: Conceptual and Theoretical Framework

The BEFASTA education provides the audience with information related to risk factors for stroke, symptoms of stroke, and available emergent medical treatment. The information is in a format an adult can easily understand. The intention of this scholarly project is to inform adults of the effectiveness of emergent medical treatment with alteplase to improve outcome if a stroke occurs. It is the author's opinion that educating people about the effectiveness of Alteplase, will influence their behavior to call 911 when stroke symptoms occur. Nurses have a history of providing education to individuals and communities to influence behavior to be wellness focused as well as when to seek medical attention. Educating people on how to live a healthy lifestyle and what to do if a medical emergency occurs is considered preventative. Several nursing theorists have discussed health promotion and using education to prevent illness. Neuman's Systems Model (NSM) will be utilized as the theoretical framework to support the concepts for this scholarly project.

#### **Neuman's System Model**

NSM was developed in 1970 and first published in 1972 (Smith & Parker, 2015). Her theory incorporates a philosophy that emphasizes wellness, wholism, and client participation along with acknowledging the importance of energy and the interaction between people (Smith & Parker, 2015). To demonstrate a collaborative relationship a nurse has with another person or patient, Neuman uses the term client instead of patient in her theory (Smith & Parker, 2015). Smith and Parker (2015) included the 10 perspectives of the NSM that define, describe, and connect the concepts. The complete list of perspectives for NSM is provided in Appendix A.

The eighth and ninth concepts of NSM are the ones most relevant for this scholarly project. These unique perspectives clarify the role of providing knowledge as an intervention with a client for health promotion. Neuman's theory supports educating clients about risk factors associated with stressors to prevent a reaction or retain stability to maintain wellness. BEFASTA education includes information about risk factors for stroke and the importance of lifestyle changes or using medications to reduce the chance for a person to experience a stroke. This information includes statistics provided by the AHA. The eighth perspective of Neuman's theory supports health promotion with clients, the action of educating a client about risk factors to reduce stressors to prevent illness. The ninth perspective of NSM discusses symptomatology from stressors. The BEFASTA education includes information about what the symptoms of stroke are and urges a person to call 911 when stroke symptoms occur. Also included in the BEFASTA education is information about Alteplase along with results from research that demonstrate its effectiveness in lessening disability from ischemic stroke.

An expectation of this project is that educating adults about primary and secondary prevention related to ischemic stroke will encourage a person to call 911 if experiencing stroke symptoms.

## Chapter Four: Methodology and Analysis

The BEFASTA project will be conducted to establish if educating a person about stroke symptoms, the available treatment that decreases disability will influence an individual's opinion to call 911. The method chosen to inform the public about the importance of seeking help if stroke symptoms occur is to provide an educational session in a public setting. During this session, the author will use a PowerPoint presentation and a questionnaire. The author will narrate each slide. The purpose of BEFASTA education is to influence learners' opinion about calling 911 if they experience stroke symptoms or are with a person who is having symptoms of stroke. As described previously, the acronym BEFASTA stands for the symptoms of stroke and the importance of acting fast. The literature review provides the evidence from research that the quicker a person receives alteplase for an ischemic stroke the better an outcome of lesser disability.

### **Methodology**

This event was held in a conference room of a hotel in a western suburb of Minneapolis, Minnesota. The hotel has an athletic club within its complex with members from the surrounding community. The target audience for BEFASTA education is people age 55 or older. I chose this setting because the athletic club has an exercise class called Silver Sneakers formatted especially for people age 65 years and older. A flier advertising the informational session about stroke education was placed in the club's newsletter and displayed in public areas at the club.

On May 2, 2017, 12 participants attended the BEFASTA education session. Each person in attendance was given two identical questionnaires with three questions (see Appendix C). The purpose of the questionnaire is to anonymously assess an attendee's

opinion before and after listening to the information presented. Before the presentation, each person completed the questionnaire, which was collected. At the completion of the presentation, the participants again completed the questionnaire with the same questions. The two questions are the following: “Do you know the risk factors for stroke?” “Do you know the physical symptoms of stroke?” For the first two questions, six of the respondents answered yes, before the session; after the information session, all participants answered yes to both questions. For the final question, before the BEFASTA education 10 of the 12 people said, “yes.” After the session, all of the respondents answered “yes.”

That only half of the audience was aware of the symptoms of stroke and the risk factors before the education was an important finding, indicating a need for public education. At the completion of the education, that all indicated an awareness of stroke symptoms and willingness to call 911 indicated that the information provided in the educational session did influence the attendees’ opinions.

### **Evaluation**

The BEFASTA education project grew from the author’s clinical experience as a nurse. During her career, she observed how medical treatment for ischemic stroke has improved dramatically in recent years. She has witnessed first hand how treating a person experiencing the symptoms of ischemic stroke with alteplase has demonstrated to improve outcome and lessen disability significantly. It is imperative for a person to identify that he or she is experiencing stroke symptoms and present to the hospital as fast as possible. The first step is for a person to know the symptoms of stroke. While this project was being developed, the author assumed that the general public was aware of

what stroke symptoms are but did not seek emergent medical treatment because of the lack of awareness that a medication exists may help reduce the effects of this paralyzing disease process. The BEFASTA education project included information on risk factors that cause stroke, what symptoms a person has when a stroke occurs, and the effectiveness of emergent treatment for ischemic stroke with the medication Alteplase. The project was completed with an audience of twelve adults who are older than 65 years. All of the attendees at the presentation were at the stage of life when a stroke has an increased prevalence. The responses provided on the three-question survey before the education session demonstrated that half of the attendees did not know risk factors for stroke or the symptoms of stroke. All participants indicated that they would go to a hospital for help if they thought they were having a stroke. The fact that half of the audience did not know the symptoms of stroke was a surprise to the author. After the BEFASTA education, all of the attendees acknowledged they knew risk factors for stroke, stroke symptoms, and would call 911 if they were experiencing any of the symptoms. This project did uphold the assumption that education does increase awareness of stroke and that education does change a person's attitude to call 911.

This project has demonstrated the need to educate the public about the symptoms of stroke. During the education session examples of patients' symptoms before and after receiving Alteplase were described to demonstrate the effectiveness of the intravenous treatment with the medication Alteplase. The attendees were amazed by these stories. Many comments were made how they were not aware that people could be healed from the paralyzing symptoms of ischemic stroke.

## Chapter Five: Conclusions, Significance, and Implications for Future

This Chapter describes the significance and implications of this scholarly project for the role of educating the public about stroke symptoms and the importance of emergent medical treatment. The medication Alteplase has proven successful to lessen disability for people experiencing an embolic stroke. Increasing public awareness of the physical symptoms of stroke is necessary to change the behavior of an individual to call 911.

### **Significance**

This project demonstrates that people generally are not aware of stroke risk factors or the symptoms of stroke. The significance of this scholarly project provides evidence for increased public awareness of stroke symptoms to change behavior to receive emergent treatment. The author hopes increased public awareness of medical treatment for embolic stroke will increase the treatment of people experiencing stroke symptoms with Alteplase and lessen the burden of disability. This project supports that ongoing education of stroke risk factors and stroke symptoms is imperative to achieve this goal.

### **Implications**

This project supports the necessity to continue to provide education for the general public about the symptoms of stroke. This project does not need to be replicated to prove that education changes attitudes. Repeating the project to prove this assumption would be a waste of time. What is indicated is to move forward with more national and international public awareness education efforts about stroke symptoms along with the message that calling 911 is imperative to receiving effective emergent treatment. These

educational efforts would include information about what stroke symptoms are and why a person must go to the hospital as fast as possible for emergent treatment. Increasing public awareness is the only way to decrease the severity of disability an individual may suffer from a stroke.

Incorporated in the BEFASTA education are the risk factors for stroke. This was included to encourage the attendees to do a self-awareness check related to their risk factors to hopefully decrease their chance of having a stroke. Educating the public about risk factors may encourage them to do lifestyle changes to avoid having an ischemic stroke.

The author of this paper has a passion for supporting people to lead healthy independent lives without paralysis or disability that a stroke may cause. To lessen the incidence of stroke, individuals need to choose a lifestyle that avoids developing the modifiable risk factors to be so severe that an artery closes up in their brain that could cause damage that disables them for the rest of their life. To change the statistic that stroke is the number one cause of disability, the answer is a combination of people making changes in their lives to prevent stroke and treating all people who are experiencing an acute ischemic stroke with alteplase. To succeed with this goal a worldwide system of education that reaches all people must occur. The author has many ideas on how to accomplish this feat. The author acknowledges that an ongoing health awareness campaign would require financial funding with a source to be discovered. For the education to be effective many different modes of technology would need to be incorporated along with different languages and approaches that address different cultures.



### **Essentials of Doctoral Education for Advanced Nursing Practice**

The American Association of Colleges of Nursing (AACN) has defined the roles of the APRN (Moran, Burson, & Corad, et al., 2017). For a nurse becoming an advanced practice registered nurse (APRN), the AACN provided eight essentials for the doctoral student. Moran et al. (2017) provided the eight essentials of doctoral education for advanced nursing practice along with definitions. Listed are these essentials along with how each of them applies to the BEFASTA project.

#### **Essential I: Scientific Underpinnings for Practice**

The BEFASTA project intertwined the facts about the effectiveness of emergent treatment for ischemic stroke with alteplase along with the knowledge of the necessity of a person knowing the symptoms of stroke and acting on that information to seek help to be effective. The author acknowledges that people have a choice to seek medical advice when they have changes in their physical status. Incorporating NSM, specifically the concepts she developed related to educating patients, supports this project (Smith & Parker, 2015). The BEFASTA project reinforces that educating people about stroke symptoms is necessary to influence an individual's decision making about the urgency to seek medical help if stroke symptoms occur. This project will help health care providers understand the necessity of providing patients with information about stroke symptoms and emergent medical treatments available.

#### **Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking**

An APRN is a health care provider; this role has the responsibility of providing pertinent health information to patients. Evidence-based practice has shown that the

modifiable and non-modifiable risk factors when combined increase a person's risk for stroke. When the modifiable risk factors are improved the risk of stroke decreases. All people have non-modifiable risk factors for stroke. For this reason, community education about stroke symptoms is indicated. For individuals who are working with their health care provider and have modifiable risk factors for stroke, this project supports providing these individuals with an education of how to identify stroke symptoms along with medical recommendations of how to decrease their risk of stroke by improving their health by minimizing those risk factors.

### **Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice**

As a future healthcare provider, the author of this project acknowledges there are many issues with helping individuals manage their health. A healthcare provider is responsible for providing education to all patients about the possible consequences of not following medical advice. Health counseling needs to be individualized and respectful of a patient's ethnicity. Incorporating cultural sensitivity when providing patients with information about stroke is essential. Some people may have backgrounds where people in their community when discovered to have had a stroke are considered to be of lesser importance.

### **Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care**

Technology can help to support educating individuals and the general public of about stroke symptoms, the necessity of seeking medical help quickly, and the available emergent treatments. There are many forms of communication that people interact with

daily. Many people have cell phones, computers, and televisions and are exposed to advertising through these devices. Utilizing social media to inform people is a logical approach to increasing awareness of the general public. Throughout the world, are many different languages. People who use cell phones for social media already have them programmed in the language they prefer. The author hopes that health education will become more common in all forms of social media.

### **Essential V: Health Care Policy for Advocacy in Health Care**

A person who calls 911 while experiencing stroke symptoms commonly is brought to the nearest hospital. All hospitals do not have alteplase available or physicians who know when or how to give the medication. Currently, in Minnesota, there are no statutes to direct emergency medical technicians (EMTs) to bring patients with stroke symptoms to the nearest hospital that is prepared to give alteplase. Improving the knowledge of the general public about stroke will support the Minnesota Department of Health's efforts to develop a statewide system of triaging acute stroke patients to hospitals prepared to give Alteplase.

### **Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes**

The BEFASTA project supports effective communication among healthcare professionals of the importance of educating patients about stroke symptoms and the need to call 911. The acronym is easy to remember and readily helps a provider to quickly identify symptoms of stroke that may indicate treatment with Alteplase. Using this simple approach will make it easier for a healthcare provider to provide emergent treatment when indicated.

## **Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health**

Pulling it all together to help a patient lead a healthier, happier life is the ultimate goal a healthcare provider has for each patient. This requires an APRN to incorporate all the available tools and then skillfully educate each patient with persuasion to support lifestyle modifications to improve health. BEFASTA is a useful educational tool that can be used to help reinforce the necessity to manage modifiable risk factors for stroke.

## **Essential VIII: Advanced Nursing Practice**

Improving a patient's outcome and lessening the disability caused by ischemic stroke is the reason an APRN needs to be proficient in understanding and treating modifiable risk factors for stroke for patients. To maintain health is a clinically complex challenge to avoid development of disability a stroke can cause. APRNs develop comprehensive plans of care for their patients. Included in these plans needs to be information about the consequences of not following medical advice. Incorporating into the patient's education plan the signs and symptoms of stroke will increase awareness of possible complications of modifiable risk factors not being managed.

In conclusion, the BEFASTA education project grew from the author's clinical experience as a nurse. During her career, she observed how medical treatment for ischemic stroke has improved dramatically in recent years. She has witnessed first hand how treating a person experiencing the symptoms of ischemic stroke with alteplase has demonstrated to significantly improve outcome and lessen disability. It is imperative for a person to identify experiencing stroke symptoms and get to the hospital as fast as possible. The first step is for a person to know the symptoms of stroke. While this

project was being developed, the author believed that the general public was aware of what stroke symptoms are but did not seek emergent medical treatment because of lacking awareness that a medication can be given to help reduce the effects of this paralyzing disease process. The BEFASTA education project included information on risk factors that cause stroke, what symptoms a person has when a stroke occurs, and the effectiveness of emergent treatment for ischemic stroke with the medication alteplase. The project was completed with an audience of 12 adults older than 65 years. All of the attendees are at the stage of life when a stroke has an increased prevalence. The responses provided on the three question survey before the education session demonstrated that half of the attendees did not know risk factors for stroke or the symptoms of stroke. All participants indicated that they would go to a hospital for help if they thought they were having a stroke. Discovering that half of the audience did not know the symptoms of stroke surprised the author. After the BEFASTA education, all of the attendees acknowledged they knew risk factors for stroke and the symptoms of stroke and would call 911 if they were experiencing any of the symptoms. This project did uphold the assumption that education does increase awareness of stroke and that education does change a person's attitude to call 911. Consequently, this project demonstrated the need to educate the public about the symptoms of stroke.

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## Appendices

### **Appendix A**

#### Neuman System Model Perspectives

1. Each individual client or group as a client system is unique; each system is a composite of common known factors or innate characteristics within a normal, given range of response contained within a basic structure.
2. The client as a system is in a dynamic, constant energy exchange with the environment.
3. Many known, unknown, and universal environmental stressors exist. Each differs in its potential for distributing a client's usual stability level, or normal line of defense. The particular interrelationships of client variables—physiological, psychological, sociocultural, developmental, and spiritual—at any point in time can affect the degree to which a client is protected by the flexible line of defense against a possible reaction to a single stressor or a combination of stressors.
4. Each individual client—client system has evolved a normal range of response to the environment that is referred to as a normal line of defense, or usual wellness/stability state. It represents change over time through coping with diverse stress encounters. To the normal line of defense can be used as a standard from which to measure health deviation.
5. When the cushioning, accordion-like-effect of the flexible line of defense is no longer capable of protecting the client-client system against an environmental stressor, the stressor breaks through the normal line of defense.



The interrelationships of variables—physiological, psychological, sociocultural, developmental, and spiritual—determine the nature and degree of system reaction or possible reaction to the stressor.

6. The client, whether in a state of wellness or illness, is a dynamic composite of the interrelationships of variables—physiological, psychological, sociocultural, developmental, and spiritual. Wellness is on a continuum of available energy to support the system in an optimal state of system stability.
7. Implicit within each client system are internal resistance factors known as lines of resistance, which function to stabilize and return the client to the usual wellness state (normal line of defense) or possibly to a higher level of stability after an environmental stressor reaction.
8. Primary prevention relates to general knowledge that is applied in client assessment and intervention in identification and reduction or mitigation of possible or actual risk factors associated with environmental stressors to prevent a possible reaction. The goal of health promotion is included in primary prevention.
9. Secondary prevention relates to symptomatology after a reaction to stressors, an appropriate ranking of intervention priorities, and treatment to reduce their noxious effects.
10. Tertiary prevention relates to the adaptive processes taking place as a reconstitution begins and maintenance factors move the client back in a circular manner toward primary prevention (Smith & Parker).

**Appendix B****QUESTIONNAIRE**

Please circle one answer for each question

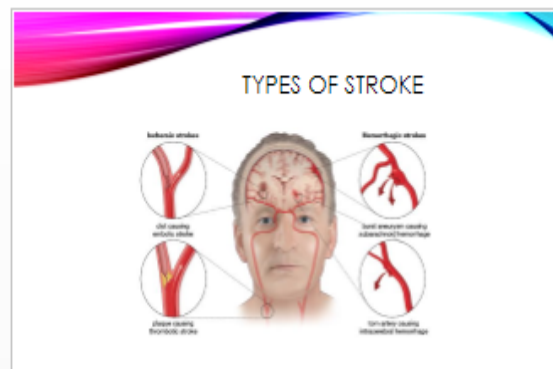
1. Do you know the risk factors for ischemic stroke?      YES      NO
2. Do you know the physical symptoms of stroke?      YES      NO
3. If you were experiencing symptoms of stroke would you call 911?  
YES      NO

## Appendix C

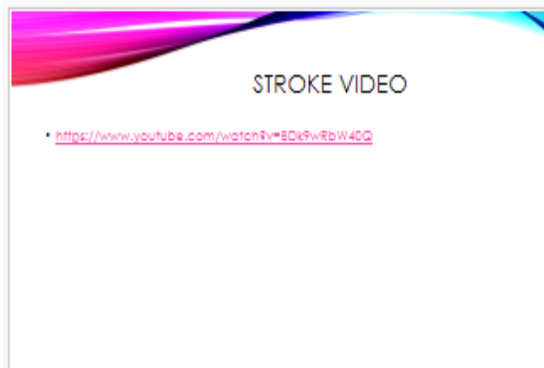
## Slides for BEFASTA Education



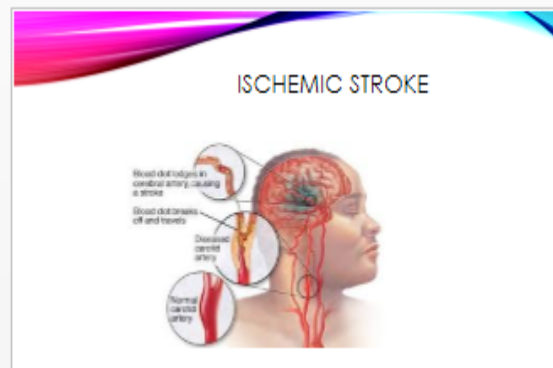
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2



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4



5



6

### ALTEPLASE WHAT IS IT?

- Tissue-type plasminogen activator
- Often referred to as "CLOT BUSTER medicine"
- 1995 first study to prove given emergently decreases or prevents severe disability
- TIME IS BRAIN- the sooner it is given to the beginning of the stroke symptoms the more effective

7

### ALTEPLASE

MUST BE GIVEN IN LESS THAN 4.5 HOURS



8

### ALTEPLASE SUCCESS

- Emberson et al. (2014) provided a meta-analysis with data from 6756 patients from nine randomized studies. Results from these studies demonstrated more evidence that the earlier a person receives tPA within 3 hours of onset of symptoms, the better the outcome of lesser disability at 3-6 months post stroke.
- Alteplase is proven to be safe given within 4.5 hours from onset of stroke symptoms

9

### TIME IS BRAIN



10



11



12

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- [http://www.strokeassociation.org/STROKEORG/WarningSigns/Stroke-Warning-Signs-and-Symptoms\\_UCM\\_308328\\_SubHomePage.jsp](http://www.strokeassociation.org/STROKEORG/WarningSigns/Stroke-Warning-Signs-and-Symptoms_UCM_308328_SubHomePage.jsp)
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13

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14



**BEFAST**  
SPOT A STROKE

15

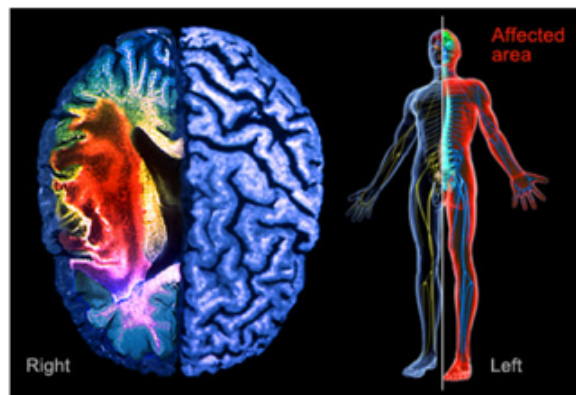


## Appendix E

### BEFASTA Presentation Slides



## ACKNOWLEDGEMENT



<https://www.webmd.com/stroke/ss/slideshow-stroke>



## **PURPOSE OF PROJECT**

- This project provides informational tool about risk factors for stroke, how to identify symptoms of stroke and why it is important to call 911 to go to a hospital to be evaluated for possible emergent treatment with Alteplase. The BEFASTA educational tool provides people with information about the effectiveness of Alteplase for treating individuals who are having an embolic stroke.



## **Literature Review**

PREVIOUS COMMUNITY AWARENESS  
AND EDUCATION EFFORTS HAVE PROVEN  
TO BE SUCCESSFUL TO RAISE AWARENESS  
ABOUT SYMPTOMS OF STROKE





## BETTY NEUMAN SYSTEMS MODEL

### Neuman Systems Model Perspectives

- Primary prevention relates to general knowledge that is applied in client assessment and intervention in identification and reduction or mitigation of possible or actual risk factors associated with environmental stressors to prevent a possible reaction. The goal of health promotion is included in primary prevention.
- Secondary prevention relates to symptomatology after a reaction to stressors, an appropriate ranking of intervention priorities, and treatment to reduce their noxious effects.



## SETTING

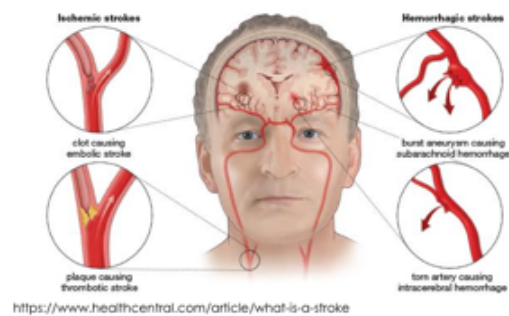
- Audience: Men and women age 65 years and older and members of an athletic club who attend Silver Sneakers Exercise class.
- Classroom style setting with a power point presentation. Project was completed  
May 2, 2017
- 12 people attended presentation

## DEVELOPMENTAL EVALUATION



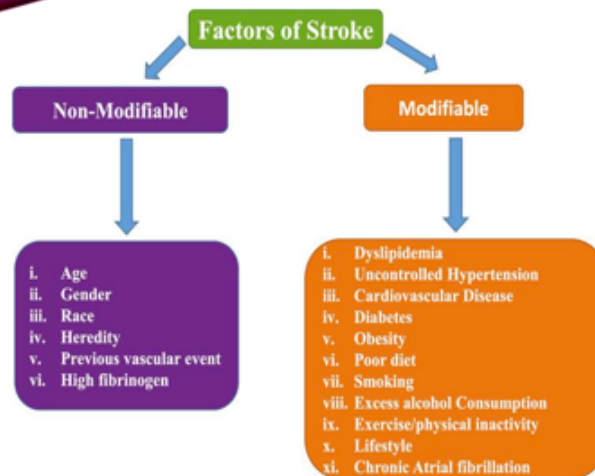
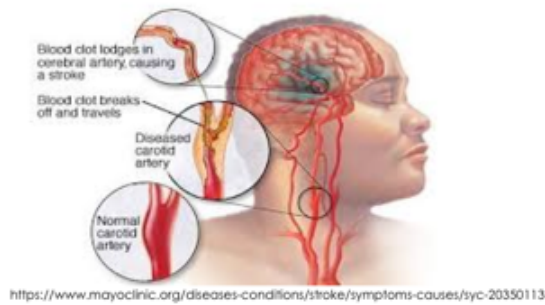
<https://www.artfwd.org/learning-in-complex-contexts/>

## TYPES OF STROKE



<https://www.healthcentral.com/article/what-is-a-stroke>

## ISCHEMIC STROKE





<https://www.joekroftfoundation.com/stroke-2/b-e-f-a-s-t-save-a-life-from-stroke/>

## ALTEPLASE WHAT IS IT?

- Tissue-type plasminogen activator
- Often referred to as “CLOT BUSTER medicine”
- 1995 first study to prove given emergently decreases or prevents severe disability
- TIME IS BRAIN- the sooner a patient receives the medicine to the beginning of the stroke symptoms, the more effective the medicine is!

## ALTEPLASE

**MUST BE GIVEN IN LESS THAN 4.5 HOURS**



## ALTEPLASE SUCCESS

- Emberson et al. (2014) provided a meta-analysis with data from 6756 patients from nine randomized studies. Results from these studies demonstrated more evidence that the earlier a person receives tPA within 3 hours of onset of symptoms, the better the outcome of lesser disability at 3-6 months post stroke.
- Alteplase is proven to be safe given within 4.5 hours from onset of stroke symptoms



<https://www.freepik.com/free-photos-vectors/forklifts>

## THREE QUESTION ASSESSMENT TOOL

- Do you know the risk factors for ischemic stroke?
- Do you know the physical symptoms of stroke?
- If you were experiencing symptoms of stroke would you call 911?



## RESULTS

- Prior to presentation only half of audience knew the risk factors for stroke, or the symptoms of stroke
- All responded before, and after the presentation, that they would call 911 if they knew they were having a stroke
- After presentation all of the attendees said yes to all three questions



## IMPORTANT FINDING

- Lack of knowledge about risk factors for stroke and stroke symptoms
- Education does change attitudes



## **ESSENTIALS OF DOCTORAL EDUCATION FOR ADVANCED NURSING PRACTICE**

### **I. Scientific Underpinnings for Practice**

The BEFASTA project reinforces that educating people about stroke symptoms is necessary to influence decision making by an individual about the urgency to seek medical help if stroke symptoms occur. This project will help health care providers understand the necessity of providing patients information about stroke symptoms and emergent medical treatments available.



## **ESSENTIALS OF DOCTORAL EDUCATION FOR ADVANCED NURSING PRACTICE**

### **IV. Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care**

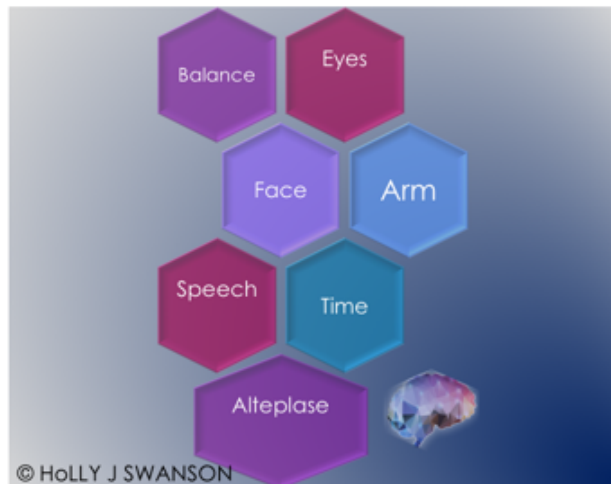
The importance of cellphones for non-English speaking people and health education



## TIME IS BRAIN



[https://cascademedical.org/sites/default/files/pdfs/paramedic-lecture-series/Door-to-Needle%20Time%20Stroke\\_Miltred.pdf](https://cascademedical.org/sites/default/files/pdfs/paramedic-lecture-series/Door-to-Needle%20Time%20Stroke_Miltred.pdf)





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